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NASA Procedural Requirements

COMPLIANCE IS MANDATORY

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CHAPTER 3: Program Purpose and Benefits

3.1 EA Program Goals

3.1.1 EA is a strategic information asset that identifies the Lines of Business (LoB) for the Agency; the services in support of the LoB; the information, technologies, and systems necessary to create and perform the services; and the transitional processes for implementing new services, technologies, or systems in response to the changing needs of the Agency mission (LoB). The goal is to maintain the EA as the primary authoritative resource for IT planning and execution. This goal will be met through the value and utility of the information provided by EA products developed and maintained under the procedures defined in this NPR.

3.2 EA Offers Tangible Benefits

3.2.1 Listed below are the major benefits from an effective EA Program. A more comprehensive description of benefits for CIOs, business offices, and program and project managers is available in NASA Enterprise Architecture Volume 1: Strategy and Overview.

a. Financial

(1) Promote effective budgetary planning.

(2) Guide the investment process (OMB 300 Reporting, CPIC).

(3) Manage Service Level Agreements. (4) Reduce time of delivery.

(5) Reduce support costs.

(6) Lower acquisition costs.

b. Technology

(1) Promote strategic use of emerging technologies.

(2) Improve interoperability.

(3) Leverage existing systems more effectively.

(4) Assist in the planning of decommissioning outdated technologies.

c. Processes

(1) Improve software and hardware development time.

(2) Focus on unique requirements and share common requirements.

(3) Guide the investment process (OMB 300 Reporting, CPIC).

(4) Enhance mission success.

d. Knowledge Capture

(1) Provides a list of current Agency-wide Projects.

(2) Provides a common view of the Enterprise Architecture.

(3) Provides a communication forum to vet requirements.

3.3 Guiding Principles

3.3.1 The EA Program will confirm that a proposed or ongoing IT project or service follows a set of guiding principles. Guiding principles document the fundamental concepts and guiding themes for the entire EA initiative and provide guidance to assure that common goals exist and a unified message is communicated. Ideally, every action taken in EA should be compared to the following guiding principles:

a. Customer Driven Solutions that Enable Business Achievement. Customer outreach is performed through capital planning and investment control to assure current and future investments are aligned with NASA?s Enterprise Architecture and help achieve NASA?s business goals.

(1) **Customer Focused**. EA is an enabling strategic tool to facilitate mission accomplishment and create an environment that strives to be competitive in providing services to our customers. Operational processing is balanced with decision support needs, resulting in an optimized system supporting the business process.

(2) **Ownership**. Systems should have a clear, recognized business owner and a clear, recognized IT owner. The business owner has functional responsibility for assuring the system meets the program or project goals. The IT owner has responsibility for the operational, technical day-to-day service.

(3) **Collaboration**. EA must enable and promote collaboration among NASA organizational elements, partners, vendors, contractors, and external elements. EA supports the sharing of resources and costs while creating economies of scale.

b. Maintain an Adaptable Infrastructure. NASA?s infrastructure must be dynamic yet secure, evolving from the current ?As-Is? state to a future ?To-Be? state that uses reference architectures to incorporate emerging technologies when appropriate and plan for end of life cycle systems. An adaptable infrastructure also promotes the reuse of viable existing systems, which reduces overall complexity and redundancy.

(1) **Interoperable, Extensible, and Open Systems**. EA must interoperate within, between, and across all NASA organizational elements, business partners, vendors, contractors, partners, and external elements.

(2) **IT Security**. NASA must comply with all applicable IT security requirements as delineated in NPD 2810.1.

(3) **Smallest Set of Systems that Fully Cover Agency Requirements**. EA constantly strives to reduce complexity and minimize redundancy.

(4) **Bind Technology at the Last Possible Moment**. Solutions are based on business requirements, not technology. Selecting the technology at the last possible moment assures use of the latest technology.

(5) **Commonality**. Systems should be common across organizational units and geographies where such commonality enhances the NASA mission. Global solutions should apply where business processes related to the solution are common across all organizational units and geographies in NASA.

c. Information is a Strategic Agency Asset. Quality information is necessary for informed investment decisions and planning. Models and metrics define the architecture to facilitate information sharing across the Agency to enhance and accelerate decisionmaking. EA promotes Agency-wide data standardization, reuse, interoperability, and information management within NASA, across the Federal Government, and with industry partners.

(1) **Information Management**. EA is proactive in sharing knowledge and information as a strategic asset. The requirement for data integrity, high-availability, reliability, and confidentiality is mandatory. EA supports anytime, anywhere information access in a secure environment and captures data once at the atomic (root or end) site.

(2) **Develop Conceptual Models to Facilitate Discussions**. NASA EA and the Federal Enterprise Architecture (FEA) encompass information, concepts, and models ranging from the top-level strategic vision to the detailed implementation of specific technologies.

(3) **Include Appropriate Performance Metrics**. As an integral part of the NASA Program/Project Management Process in all architectural and investment decisions, NASA will always address the key metric considerations.

d. Best Investment Value for the Agency. EA enables NASA to help meet its priorities while achieving spending restraint and accountability for investment decisions. Investments must be economically and technically achievable, reusable where practical to support the Agency?s strategic goals, and provide the greatest benefit to the largest possible user community.

(1) **Economically and Technically Achievable**. The operational EA functions must be constructed recognizing that constrained resources and prudent management call for the utilization of technically proven and cost-effective solutions.

(2) **Leverage Existing Investments**. If a commercial or Government created product already exists and would fulfill the majority of requirements (i.e., 70-80%) imposed on a design, it must be considered before moving ahead on a custom development. All efforts should use existing investments wherever possible.

(3) **Focus on the "Big Picture.?** NASA EA will focus on the Agency?s strategic direction or the ?Big Picture.? This will support top-level investment and program-level decisionmaking. Management will prioritize investments through business case analysis.

(4) **Greatest Cost/Benefit.** NASA must use the solution that fully solves the business requirements, demonstrates the best value, and provides the lowest life-cycle cost.

3.4 Best Practices

3.4.1 For the EA Program to be successful, project managers must follow the NPR 7120.5 requirements and follow project management Best Practices found in Appendix D.

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